

REMARKS

Applicant's counsel thanks the Examiner for the careful consideration given the application. The claims have been amended to more clearly define the invention and to more clearly distinguish over the prior art. Support for the amendments to claim 8 can be found in claim 20 and at specification, page 33, line 17; new claim 38 is based on claims 8 and 21; new claim 39 is supported at page 33 lines 15-17. No new matter has been added.

It is clear that the claims as now amended define over the Section 103 rejections of Bratescu et al. in view of Narayanan et al. and Bratescu et al. in view of Huber-Emden et al., for the reasons set out below.

Bratescu et al. is directed to emulsions comprising a cationic surfactant, an anionic surfactant, a bridging surfactant, an oil and water. Said emulsions may be employed in agricultural and pesticide applications. More specifically, optional ingredients may be added to the said emulsions, such as fungicides (see col. 29, line 67). Nevertheless, Bratescu et al. is completely silent on a fungicide agent selected from copper-based preparations.

Narayanan et al. is directed to the emulsifiable concentrate comprising an agriculturally active herbicide, an oil, a surfactant, and a solvent. As agriculturally active chemicals are listed chemicals which are effective in killing fungi (see col. 3, lines 26-31) such as fungicides (see col. 3 line 33). Typical fungicides are listed in col. 5, lines 25-47. Nevertheless, none of the listed fungicides are copper-based.

Therefore, neither Bratescu et al. nor Narayanan et al. disclose or even suggest a method for a fungicide treatment comprising the application of a water emulsion comprising a substance having a fungicidal activity based on copper and soy bean oil, wherein water is comprised between 15% and 85% by weight and soy bean oil is comprised between 85% and 15% by weight.

Therefore, in view of Bratescu et al. and/or Narayanan et al., the skilled person would not achieve the specific choice of a fungicide agent based on copper.

It is apparent from the specification as filed that a synergistic activity is obtained by compositions comprising said copper-based fungicidal agent. This is apparent from pages 32 and following of the specification as filed. In particular, the passage on page 32, line 23 to page 33, line 22 makes it clear that emulsions comprising soy bean oil with copper-based fungicide allows a reduction of the amount of the copper-based fungicide to be applied. In particular, page 33, line 15 recites that the reduction in the copper-based product amounts is comprised between 1/3 to 1/6 of the normal use amount. Claim 39 accordingly recites that the copper-based fungicidal substance is applied at a rate which is 1/3 to 1/6 of the standard rate. It is clear that the copper-based fungicide and soybean oil work together synergistically and permit the amount of hazardous/toxic copper to be reduced to 1/3 to 1/6 of the standard amount.

Claim 39 is in particular patentable since it defines a method of application which is neither taught, suggested, nor rendered obvious by the prior art. Nowhere in the prior art does any reference teach or suggest applying a copper-based fungicidal substance at a rate which is 1/3 to 1/6 of the standard rate. In fact, the reason they call it the standard rate is because it is the conventional rate or usual or normal rate which is customary and conventional according to the prior art. Applicant is the first and only one who has (a) recognized the problem and (b) recognized the solution. Applicant has recognized the synergy of the products and has conceived the invented method of applying the fungicidal substance at a rate of 1/3 to 1/6 of the standard rate. Not only has applicant conceived the novel idea of using such a small amount of substance, but, surprisingly and unexpectedly, he has shown that his invention is effective and works. In summary, any *prima facie* case for obviousness has been overcome by the irrefutable evidence that, surprisingly and unexpectedly, applicant's invention has been proved to be effective.

Further to the foregoing, the specification explains the synergistic results of the formulations comprising copper-based fungicides with an aqueous emulsion of soy bean oil by means of experimental data (see Tables 1 to 6 on pages 34-40), as follows:

- In Table 1 on page 34, a third of the copper-based fungicide in combination with the aqueous emulsion of soy bean oil leads to limited residues of copper.

- Further, Table 3 (page 37) below:

No.	Product	Amount (g/hl) p.a.	% infected leaf surface on 100 leaves per parcel of land (23/08/99)	% infected leaves on 100 leaves per parcel of land (23/08/99)
1	Untreated	-	22.7 a	67.3 a
6	40 % cupric hydroxide + emulsion	100 + 100	3.1 b	23.5 b
7	40 % cupric hydroxide + emulsion	50 + 50	4.2 b	29.0 b
8	40% cupric hydroxide + emulsion	25 + 25	6.6 b	30.3 b
9	40% cupric hydroxide	120	4.9 b	32.8 b

shows that 120 g/hl of cupric hydroxide leads to 32.8% of infected leaves, whereas when combined with the aqueous emulsion of soy bean oil:

- about 1/5 of this dose (25 g/hl) leads to only 30.3 % infection;
- approximately 1/3 of this dose (50 g/hl) leads to only 29% infection;
- about 83% of this dose (100 g/hl) leads to only 23.5% of infected leaves.

Further, see Table 4 (page 38) below.

No	Product	Amount (g/hl) p. a.	% infected surface per plant on 25 plants per parcel of land (12/09/00)	Fruit infection on 25 plants per parcel of land on harvesting (11/09) - % plants with infected fruits
1	Untreated	-	62.8a	53.0 a
2	50% copper oxychloride + emulsion	50 + 40	24.9 b	0 b
3	50% copper oxychloride + emulsion	25 + 20	23.9 b	0 b
4	50% copper oxychloride	150	21.0 b	0 b
5	40% cupric	40 + 40	22.6 b	0 b

	hydroxide + emulsion			
6	40% cupric hydroxide + emulsion	20 + 20	19.7 b	0 b
7	40% cupric hydroxide	120	18.8 b	0 b
8	20.2% cupric sulphate + emulsion	68.68 + 136	19.7 b	0 b
9	20.2% cupric sulphate + emulsion	34.34 + 68	19.2 b	0 b
10	20.2% cupric sulphate	202	22.4 b	3.0 b

This Table shows that:

- 1/6 or 1/3 (25 or 50 g/hl) of the dose of copper oxychloride combined with the aqueous emulsion of soy bean oil leads to the same suppression of infected plants compared to the full dose of copper oxychloride alone (150 g/hl).
- Similarly, 1/6 or 1/3 (20 or 40 g/hl) of the dose of cupric hydroxide leads to the suppression of infected plants when it is combined with the aqueous emulsion of soy bean oil, leading to the same effect as the full dose of cupric hydroxide (120 g/hl); and
- 1/6 or 1/3 (34.34 or 68.68 g/hl) of the dose of cupric sulphate leads to suppression of fruit infection when combined with the aqueous emulsion of soy bean oil, whereas the full dose of cupric sulphate (202 g/hl) only leads to partial inhibition of infection.

It is clear from the results above that the water emulsion of soy bean oil enhances in a synergistic way the fungicide activity of copper-based fungicides. This synergistic enhancement is achieved so that a reduction of the copper-based fungicide dose of 1/3 to 1/6 of the normal use amount may be utilized while achieving still better fungicide activity than the full dose of the fungicide, whilst residues are decreased.

The specific selection of copper-based fungicide on the one hand, together with the synergistic effect of the combination of an aqueous emulsion of soy bean oil with the copper-based fungicide, on the other hand, would not have been seriously considered by the skilled person; consequently the present claims must be considered nonobvious.

This nonobviousness is supported by experimental data for the full range as claimed. It is thus clear that the 35 USC 103 objection should be withdrawn and the claims allowed.

Since all the open items have now been resolved, it is clear that a Notice of Allowance is now in order, and such is respectfully requested. If any further fees are required by this communication, please charge such fees to our Deposit Account No. 16-0820, Order No. LAVO-37109.

Respectfully submitted,
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